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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/632,348	08/03/2000	Hiromitsu Tanaka	195463US0	9650

22850 7590 12/03/2003

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EXAMINER

YAMNITZKY, MARIE ROSE

ART UNIT PAPER NUMBER

1774

DATE MAILED: 12/03/2003

15

Please find below and/or attached an Office communication concerning this application or proceeding.

2015

Office Action Summary

Application No.

09/632,348

Applicant(s)

TANAKA ET AL.

Examiner

Marie R. Yamnitzky

Art Unit

1774

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 29 is/are allowed.
- 6) ☒ Claim(s) 18-24 and 26-28 is/are rejected.
- 7) ☒ Claim(s) 25 and 30-33 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

Art Unit: 1774

1. This Office action is in response to applicants' amendment filed August 26, 2003 (Paper No. 14), which cancels claims 1, 6, 7 and 14-17, and adds claims 18-33.

Claims 18-33 are pending.

2. The disclosure is objected to because of the following informalities:

The last two lines on page 8 and lines 14-15 on page 28 set forth ">C=C<...-B(R)-" as examples of "R". These possibilities are inconsistent with the disclosure that "R represents saturated hydrocarbon from C1 through C30, an isomer thereof, or an aromatic compound" (e.g. see p. 8, l. 7-9 and p. 28, l. 1-3).

The name set forth for compound 27 in the first paragraph on page 56 does not correspond to the formula for compound 27 as set forth on page 57. The name set forth in the first paragraph on page 56 does not reflect the presence of the phenyl groups in the diiodophenylbornane reactant.

Appropriate correction is required.

3. Claims 20, 22-24 and 26-28 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Art Unit: 1774

The subject matter of claims 20, 26 and 28 is not supported by the application as originally filed.

The subject matter of claims 22-24 is only partially supported by the application as originally filed. Claim 22, with claims 23 and 24 dependent therefrom, defines Ar1 and Ar2 as representing a functional unit having a substituted or unsubstituted aryl skeleton which is directly bonded or indirectly bonded to the adamantane derivative. The language "directly bonded or indirectly bonded" does not appear in the application as originally filed. Direct or indirect bonding to the "adamantane derivative" is interpreted as referring to direct or indirect bonding to the two phenylene groups which, in turn, are bonded to the adamantane ring structure. The language "directly bonded" is supported by specific adamantane derivatives disclosed in the application as filed. The language "indirectly bonded" is broader than the original disclosure because this language allows the aryl skeleton to be bonded to the phenyl rings of the adamantane derivative via any linking group whereas the original disclosure only disclosed indirect bonding through an aryl-substituted nitrogen wherein the aryl substituent is the same as the aryl skeleton (as in (a1)-(a6)).

The subject matter of claim 27 is only partially supported by the application as originally filed. The Markush group set forth in claim 27 was originally disclosed in reference to substituents for functional units represented by formulae (r17) and (r20)-(r22). While some members of the Markush group were also disclosed as the functional units themselves (e.g. the functional unit represented by formula (r13) is a pyrenyl group), most of the members of the Markush group were not.

Art Unit: 1774

4. Claims 18-20 and 26-28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 20 and 26 confuse the scope of a condensed ring compound derivative as encompassed by claim 18, with claims 19, 20 and 26 dependent therefrom, because it is not clear what is meant by the phrase "wherein the aromatic compound is bonded via...". If the requirement that the aromatic compound be "bonded via" means that the aromatic compound selected from the group set forth in claim 19 is bonded to the rest of the compound structure via one of the possibilities set forth in claim 20 or 26, claims 20 and 26 require a group that is outside the scope of the formulae as defined in claim 18.

Claim 20 is also indefinite because R^{'''}, R^{''''} and R^{'''''} are not defined.

Claim 26 is also indefinite because R^{'''} is not defined.

Claims 28 confuses the scope of a condensed ring compound derivative as encompassed by claim 27, with claim 28 dependent therefrom, because it is not clear what is meant by the phrase "wherein the aromatic compound is bonded via...". If the requirement that the aromatic compound be "bonded via" means that the aromatic compound selected from the group set forth in claim 27 is bonded to the rest of the compound structure via one of the possibilities set forth in claim 28, claim 28 requires a group that is outside the scope of the formulae as defined in claim 27.

Claim 28 is also indefinite because R^{'''}, R^{''''} and R^{'''''} are not defined.

Art Unit: 1774

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. (5,420,351).

See the whole patent. In particular, see column 2, line 65-c. 3, l. 24, c. 5, l. 14-35, c. 5, l. 60-c. 6, l. 10 and c. 6, l. 48-c. 7, l. 32.

The compounds of formulae (a1)-(a3) in present claim 21 are similar to the adamantane compounds disclosed by Suzuki et al. The present compounds of formulae (a1)-(a3) differ from Suzuki's compounds in that the present compounds contain at least one alkyl substituent on the phenylene groups which bond the diphenylamino groups to the adamantane ring structure.

Compounds represented by the formula set forth in present claim 22 wherein each of Ar1 and Ar2 represents a functional unit having a phenyl skeleton indirectly bonded to the phenylene groups which bond Ar1 and Ar2 to the adamantane ring structure are similar to Suzuki's compounds. The present compounds differ from Suzuki's compounds in that the present compounds require one or both of the phenylene groups which bond the diphenylamino groups to the adamantane ring structure to have non-hydrogen substituent(s).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to make adamantane compounds similar in structure to the adamantane compounds

Art Unit: 1774

of Suzuki et al. with the expectation that compounds similar in structure to Suzuki's compounds would have similar properties and could be used for the same purpose as Suzuki's compounds. One of ordinary skill in the art would have been motivated to make adamantane compounds similar in structure to Suzuki's compounds in order to provide other adamantane compounds having hole transporting properties that would be useful in an organic electroluminescent device as taught by Suzuki et al.

While Suzuki et al. do not disclose providing additional substituents on the phenylene groups that connect the diphenylamino groups to the adamantane ring structure, Suzuki et al. do disclose that the phenyl rings of the diphenylamino groups may be substituted with alkyl groups. It is the examiner's position that one of ordinary skill in the art would have reasonably expected that similar compounds having one or more alkyl groups substituted on the phenylene groups would have similar properties to Suzuki's compounds and would be usable for the same purpose as Suzuki's compounds.

7. Applicants' arguments filed August 26, 2003 have been fully considered when making the rejections set forth in this Office action.

With respect to the Suzuki patent, the examiner has reconsidered Suzuki's teachings and applies the Suzuki patent only against those claims which encompass diphenyladamantane derivatives having a diphenylamino substituent on each phenyl of the diphenyladamantane and having at least one alkyl substituent on each phenyl of the diphenyladamantane. The present compounds of formula (a1)-(a3), for example, are position isomers of Suzuki's compounds

Art Unit: 1774

having alkyl substituents on the diphenylamino groups. Position isomers are generally of sufficiently close structural similarity that there is a presumed expectation of similar properties.

In re Wilder, 563 F.2d 457, 195 USPQ 426 (CCPA 1977).

With respect to the “bonded via” limitation of claims 20, 26 and 28, the examiner respectfully disagrees with applicants’ arguments regarding support for the claimed subject matter. Applicants argue that the claim language is supported by the structures in the application as originally filed, specifically referencing formula (r17) as supporting -HC=CH- and formula (r4) as supporting -N=N-. It is not clear from the application as originally filed that the present “bonded via” language requires one of the possibilities set forth in claims 20, 26 or 28 to form a portion of an aromatic ring. Even if it was clear that this is what the present “bonded via” language requires, formula (r4) does not support -N=N-, and some of the other possibilities set forth in claims 20 and 28 are not disclosed as forming a portion of an aromatic ring in any of the structures set forth in the original application.

8. Claim 29 is allowed.

In claim 29, the language “substituents including hydrogen” is interpreted as allowing R1 through R8 to represent hydrogen, rather than as requiring a substituent that includes hydrogen. If interpreted as requiring a substituent that includes hydrogen, then some of the possibilities set forth in claim 30 would be outside the scope of claim 29 (e.g. cyanato, iscyanato and halogen do not include hydrogen). The interpretation of claim 29 as allowing R1 through R8 to represent

Art Unit: 1774

hydrogen is supported by the original disclosure of specific compounds represented by the formula set forth in claim 29 wherein one or more of R1 through R8 represent hydrogen.

9. Claims 25 and 30-33 are objected to because of the following informalities:

There is no period at the end of claim 25.

In line 5 of claim 30, the comma after "haloformyl" should be deleted.

A portion of claim 31 is set forth on page 25 of Paper No. 14. Page 25 of Paper No. 14 has an insufficient top margin. See MPEP 608.01 and 37 CFR 1.52.

In the penultimate line of claim 31, "an" should read --a--.

There is no period at the end of claim 33.

Appropriate correction is required. These claims will be allowable upon correction of the noted informalities.

10. Miscellaneous:

Page 8 of Paper No. 14 also has an insufficient top margin.

Each of claims 19 and 21 is also lacking a period at the end of the claim.

In line 5 of claim 24, the comma after "haloformyl" should be deleted.

11. Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicants are reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 1774

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication should be directed to Marie R. Yamnitzky at telephone number (703) 308-4413. The examiner works a flexible schedule but can generally be reached at this number from 6:30 a.m. to 4:00 p.m. Monday, Tuesday, Thursday and Friday, and every other Wednesday from 6:30 a.m. to 3:00 p.m.

The current fax numbers for Art Unit 1774 is (703) 872-9306 for all official faxes. (Unofficial faxes to be sent directly to examiner Yamnitzky can be sent to (703) 872-9041.)

MRY
November 28, 2003



MARIE YAMNITZKY
PRIMARY EXAMINER

1774